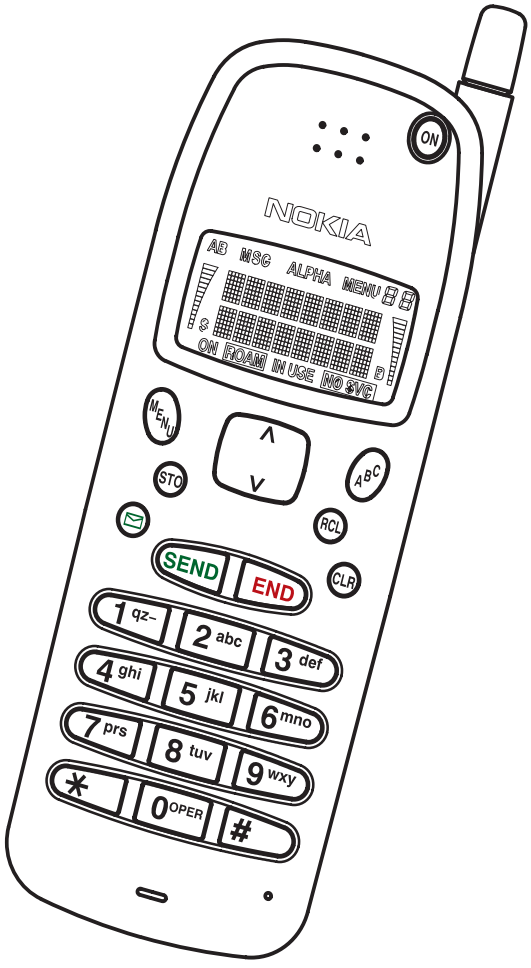
After Sales Technical Documentation

Appendix 1

TRANSCEIVER THA – 41S



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After Sales Technical Documentation

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Amendment Record Sheet

Chapter 1 Foreword

Chapter 2 Transceiver THA–41S

Chapter 3 Quick Guide

After Sales Technical Documentation

AMENDMENT RECORD SHEET

Amendment Number	Date	Inserted By	Comments

After Sales Technical Documentation

Appendix 1 – Transceiver THA–41S

Chapter 1

FOREWORD

Original, 12/95

CHAPTER 1 – FOREWORD

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Appendix Structure

This section of the service manual (Appendix) describes the Nokia THA–41S handportable telephone for use on the Advanced Mobile Phone System (AMPS). The appendix contains only information specific to the Nokia THA–41S variant.

The appendix comprises three chapters as follows: Chapter 1, Foreword (this chapter); Chapter 2, Transceiver THA–41S, containing an exploded view of the THA–41S variant (including a list of assembly parts) plus component parts lists covering the KS4 system module and the KL1 display module; and Chapter 3, Quick Guide, which aims to provide all user information that service personnel are likely to require during servicing and repair of equipment.

NOTE: The Service Manual is intended for use by qualified service personnel only.

Company Policy

Our policy is of continuous development; details of all technical modifications will be included with service bulletins.

While every endeavour has been made to ensure the accuracy of this document, some errors may exist. If any errors are found by the reader, NOKIA MOBILE PHONES Ltd should be notified in writing.

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Latest Amendment Number (if applicable)

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Please send to:

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Warnings and Cautions

Please refer to the phone's user guide for instructions relating to operation, care and maintenance including important safety information. Note also the following:

Warnings:

CARE MUST BE TAKEN ON INSTALLATION IN VEHICLES FITTED WITH ELECTRONIC ENGINE MANAGEMENT SYSTEMS AND ANTI–SKID BRAKING SYSTEMS. UNDER CERTAIN FAULT CONDITIONS, EMITTED RF ENERGY CAN AFFECT THEIR OPERATION. IF NECESSARY, CONSULT THE VEHICLE DEALER/MANUFACTURER TO DETERMINE THE IMMUNITY OF VEHICLE ELECTRONIC SYSTEMS TO RF ENERGY.

THE HANDPORTABLE TELEPHONE MUST NOT BE OPERATED IN AREAS LIKELY TO CONTAIN POTENTIALLY EXPLOSIVE ATMOSPHERES EG PETROL STATIONS, BLASTING AREAS ETC. PERMISSION MUST BE OBTAINED TO USE THE PHONE IN AIRCRAFT.

OPERATION OF ANY RADIO TRANSMITTING EQUIPMENT, INCLUDING CELLULAR TELEPHONES, MAY INTERFERE WITH THE FUNCTIONALITY OF INADEQUATELY PROTECTED MEDICAL DEVICES. OTHER ELECTRONIC EQUIPMENT MAY ALSO BE SUBJECT TO INTERFERENCE.

Cautions:

Servicing and alignment must be undertaken by qualified personnel only.

Ensure all work is carried out at an anti–static workstation and that an anti–static wrist strap is worn.

Ensure solder, wire, or foreign matter does not enter the telephone as damage may result.

Use only approved components as specified in the parts list.

Ensure all components, modules screws and insulators are correctly re–fitted after servicing and alignment. Ensure all cables and wires are repositioned correctly.

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Chapter 2

TRANSCEIVER THA–41S

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CHAPTER 2 – TRANSCEIVER THA–41S

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Introduction

The THA–41S transceiver, together with battery pack BTH–8SM ensures all the desirable features e.g. alphanumeric display and keypad, menu–control, shortcode memory facility with 98 locations, retractable antenna etc. are available in a very small and light cellular handportable.

The transceiver consists of two modules: a system module and a display module.

System Module

The system module performs the following functions:

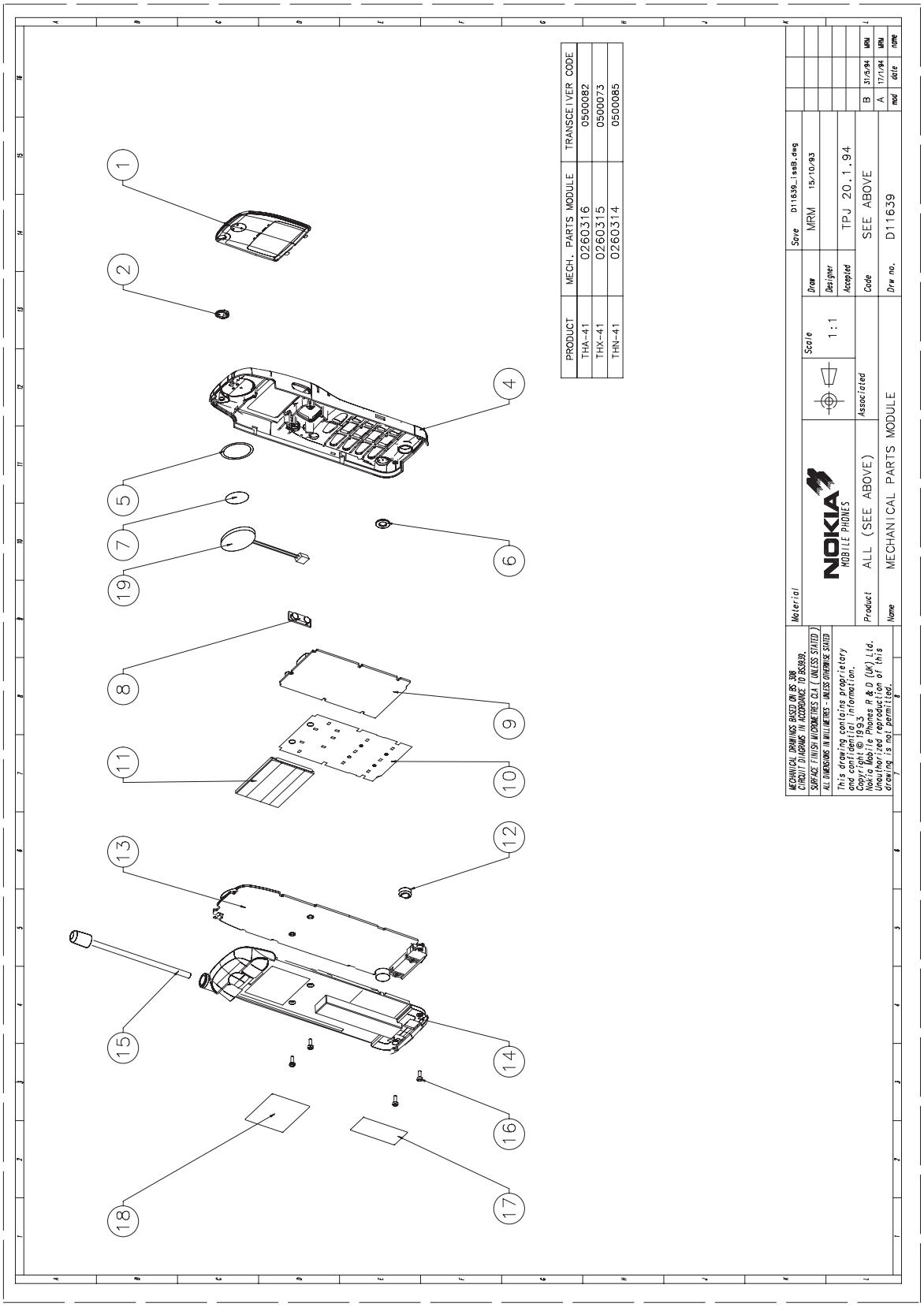
- received audio processing
- transmitted audio processing
- data reception and transmission
- channel selection
- RF signal reception and detection of the modulated information to baseband
- modulation of the baseband microphone and data signal to the selected channel and amplification of the signal to the selected power level

The system module comprises a microprocessor, which controls the main functions of the phone, and parts of the HW dependent user interface (earphone, microphone, and alarm–beeper).

Display Module

The display module comprises a supertwist–LCD, a display driver and volume control contacts.

Figure 1: Exploded View of Transceiver THA–41S



Assembly Parts

ITEM	Q'TY	CODE	DESCRIPTION	VALUE, TYPE
1		9450312	Window	A11283
2		9790084	Keymat, on/off	B11644
4		9450314	Front Moulding Assembly	E11277
5		9450133	Earphone Spacer	4D21596
6		9480108	Bleeper Gasket	A10539
7		9480107	Earphone Dust Shield	A11119
8		9790071	Keymat, volume	C11121
9		9790077	Keymat (Black Laser)	B11405
10		9795007	Polydome Layer	D11118
11		0200261	LCD Module (AMPS)	D11284
12		9460100	Mic Boot	B10538
13		0200203	PCB Module (AMPS)	D11137
14		9450313	Rear Moulding	E11278
15		0660046	Antenna (AMPS)	B11292
16	4	6290044	Screw	
17		9380077	Label	4D21359
18		9380115	Label Approval (USA)	A11590
18		9380115	Label Approval (Fin)	A11589
19		5140578	Earphone Module	B11547

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Chapter 3

QUICK GUIDE

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CHAPTER 3 – QUICK GUIDE

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Introduction

This section provides a brief user guide and covers the following:

- List of Keys
- Display Indicators
- Getting Started
- The Memory
- The Menu Method

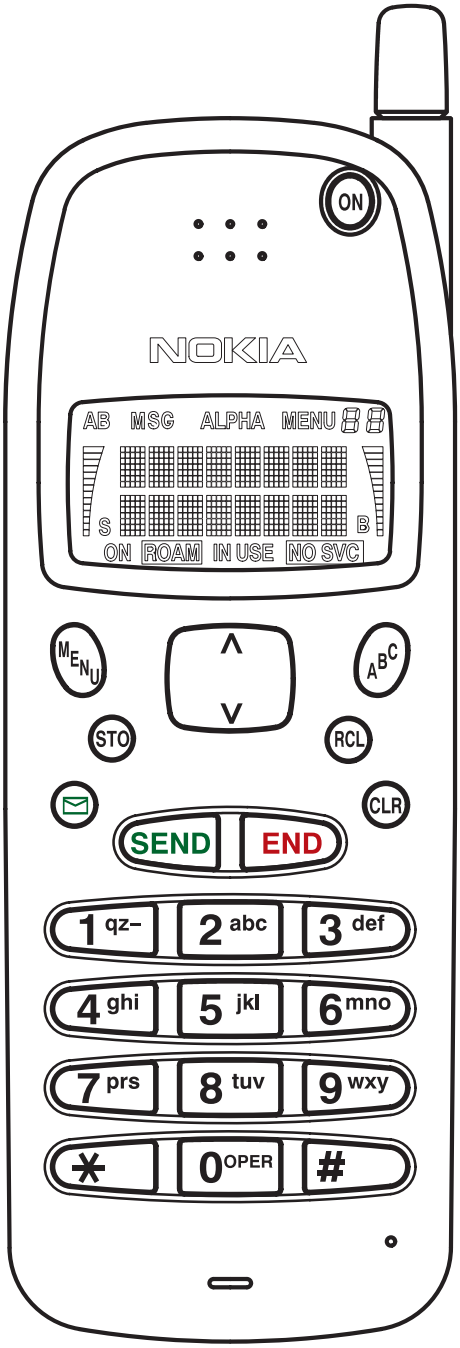
List of Keys

Figure 1 showing the keys can be found overleaf.

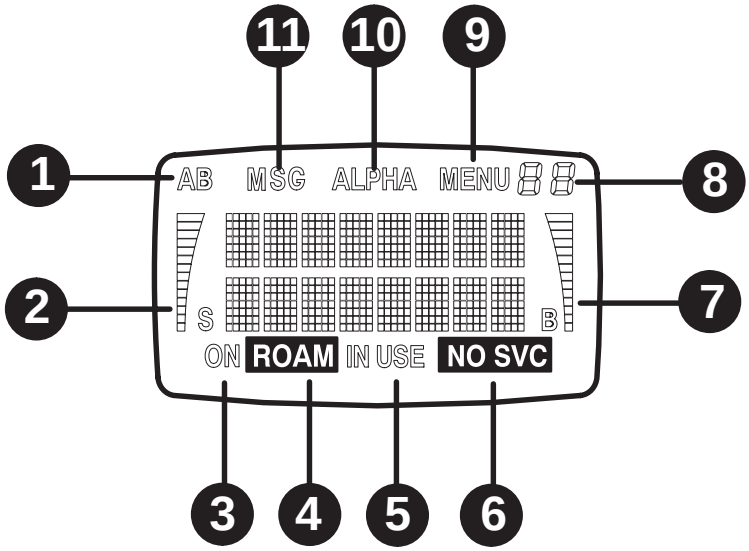
ON	Press and hold to switch the phone on or off.
ABC	Selects alpha mode/number mode; ie, press once to select alpha mode (ie, to enter characters or display names), and press again to select number mode.
MENU	Selects menu mode.
∧ or ∨	Scrolls the memory locations. After pressing **MENU**, ∧ or ∨ scrolls the menus and displays options.
RCL	Recalls information from a memory location. If the display is full, shows hidden digits.
STO	Stores information in a memory location. In a menu, confirms a setting.
	Dials voicemail or favourite number.
CLR	Deletes characters and clears display.
SEND	Dials a number. Pressing **MENU SEND** in a call can send DTMF data.
END	Ends a call.
0 to **9**	
***** and #	Enter numbers and characters. 9 (for emergency calls), ***** and # are also used for one–touch dialling. ***** is also used for the special characters, '+', 'p' and 'w'. '+' may be used as an international dialing prefix, and for memory linking. '+', 'p' and 'w' are used for DTMF dialling.

On the side of the phone:
△ and ▽ Select earpiece volume.

Figure 1: THA–41S Transceiver



Display Indicators



❶	**AB Indicator**	Shows which network is in use: **A** – System A only **B** – System B only **AB** – Both systems Blank – Home area only
❷	**Signal Indicator**	Shows approximate received signal strength.
❸	**ON Indicator**	Shows the phone is switched on.
❹	**ROAM Indicator**	Shows which system the phone is using: On – home system in a non–home area Flashing – non–home system Off – home system in the home area
❺	**IN USE Indicator**	Shows that a call is in progress.
❻	**NO SVC Indicator**	Shows that cellular service is not available.
❼	**Battery Indicator**	Shows approximate capacity remaining. Scrolls when charging is in progress. Flashes to show that battery is too hot or cold and will not be charged. If charging while phone is switched off, the indicator bars disappear, but **B** remains on.
❽	**Number**	Shows menu or memory location selected.
❾	**MENU Indicator**	Shows that menu mode has been selected.
❿	**ALPHA Indicator**	Shows that alpha mode has been selected; letters can be entered, and names can be displayed.
⓫	**MSG Indicator**	Shows that a caller has left a message.

Getting Started

Switch on/off	Press and hold the **ON** key.
Make a call	Key in the number (include area code if necessary). Press **SEND** key.
Answer a call	Press any key except **ON** or the **VOLUME** keys.
End a call	Press **END** key.
Clear digit	Press **CLR** key.
Clear display	Press and hold **CLR** key.
Last number redial	Ensure display is clear, then press **SEND** key.
Adjust volume	Press ∧ or ∨ key.
Reading a message	Messages are displayed in one of three formats: **Voice Mail** – the number of calls received and **!** is displayed if urgent. **Text** – Up to 15 characters displayed. **Callers number** – Press **SEND** to dial and recall.

The Memory

Store a phone number	Key in area code, number (and, when alpha mode is selected, name if required). Press **STO** key. Press **STO** key again to store the number in the first empty memory location.
Speed dialling	Enter the number of the memory location containing the number to be dialled (eg. **2**). Alternatively, press **ABC** key (to select alpha mode), then enter the name stored with the number to be dialled. Press **SEND** key.
Scroll through memory	Press **RCL** then ***** or **#** to scroll all used memory locations in numerical order.
Scroll for a name	Press **ABC** key (to select alpha mode). Press ∨ key to display the name which is first in alphabetical order, or press ∧ key to display the name which is last. Press ∧ or ∨ key to display other stored names.

Recall a specific memory location	Either: press **RCL** followed by the location number (eg. for location 2, press **RCL 2**) or: enter a memory location number then press **RCL** (eg. for location 1 press **1 RCL**, or for location 12 press **1 2 RCL**):
Recall your own number	Press **RCL 99**

The Menu Method

Enter menu	Press **MENU** key.
Scroll	Press ∧ or ∨ key.
Select function	Press **STO** key.
Set option	Press ∧ or ∨ key to scroll the options. Press **STO** key to select option displayed.
Shortcut facility	Press **MENU** key, then enter the number of the menu function required (see table below and overleaf).

The main menu features available are listed in the table below:

Menu Name	Short Cut	Description
LOCK PHONE	**MENU 0** (L)	Locks/unlocks the phone.
SYSTEM SELECT	**MENU 1**	Selects roaming mode (system feature).
RINGING TYPE	**MENU 2**	Selects the ringing tone type.
CALL TIMERS	**MENU 3**	Displays length of calls. Resets the timers (S).
LIGHTS CONTROL	**MENU 4**	Selects operation of display and keypad lights.
KEYPAD TONES	**MENU 5**	Switches keypad tones on/off.
RINGING VOLUME	**MENU 6**	Selects volume of ringing tone.
NAM SELECT	**MENU 7**	Displays and selects cellular number/network.
AUTO ANSWER	**MENU 8**	Sets automatic answer on/off.
ACCESSORY MENU	**MENU 9**	Controls accessories connected to phone.

Menu Name	Short Cut	Description
CLEAR LAST CALL	**MENU 10**	Sets the last–called numbers to be cleared or retained when phone is switched off.
CHANGE LOCK CODE	**MENU 11** (S)	Allows you to change lock code.
DATA MODE	**MENU 12**	Selects data mode (in a call).
EMERGENCY 9 KEY	**MENU 13** (L)	Sets **9** key on/off for one–touch dialling of emergency calls.
CALL BARRING	**MENU 14** (S)	Sets call restrictions.
MEMORY LOCK	**MENU 15** (S)	Sets memory access restrictions.
ACTIVATE KEYGUARD	**MENU *** or **MENU 16**	Locks/unlocks the keypad.
SEND DTMF	**MENU SEND** or **MENU 17**	Sends DTMF tones (in a call).
SID SCREEN	**MENU 18** (L)	Selects SID to on/off.
MESSAGE ALARM	**MENU 19**	Selects the audible alarm used when you receive a message.
MESSAGES	**MENU 20**	Allows you to read or delete a message.
	NOTE: Menu 18 is available only if SID information has been programmed into the selected NAM by your dealer.	

Table Notes:

(L) = requires entry of 4–digit lock code (default 1234)

(S) = requires entry of 5–digit security code (default 12345)

Battery Information

Charging Times

After the first use, the charging times depend on the type of battery fitted, and charger used; approximate times are shown below.

	Battery Type			
Charger Type	**BTH–8S/L**	**BTH–8SM**	**BTH–8H**	**BTH–8HM**
Travel Charger (ACH–3U/E/P)	1.5 hrs	2 hrs 10 m	5 hrs	5.5 hrs
Fast Travel Charger ACH–4U/E/P Cigarette Lighter Charger LCH–2	40 mins	60 mins	70 mins	100 mins

Standby and Talk Times

Approximate standby and talk times, for fully–charged batteries:

Battery Type	Standby Time	Talk Time
Light NiCd 300mAh (BTH–8L)*	9 hours	40 minutes
Standard NiCd 380mAh (BTH–8S)	10 hours	50 minutes
Standard NiMh 550mAh (BTH–8SM)	15 hours	70 minutes
Extended NiCd 800mAh (BTH–8H)	26 hours	110 minutes
Extended NiMh 1100mAh (BTH–8HM)	32 hours	150 minutes

* subject to availability

NOTE: You will obtain the standby time specified or the talk time specified, or a combination. Thus (for BTH–8S), 10 hours standby time or 50 minutes talk time is approximately equivalent to 5.5 hours standby time and 25 minutes talk time.

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